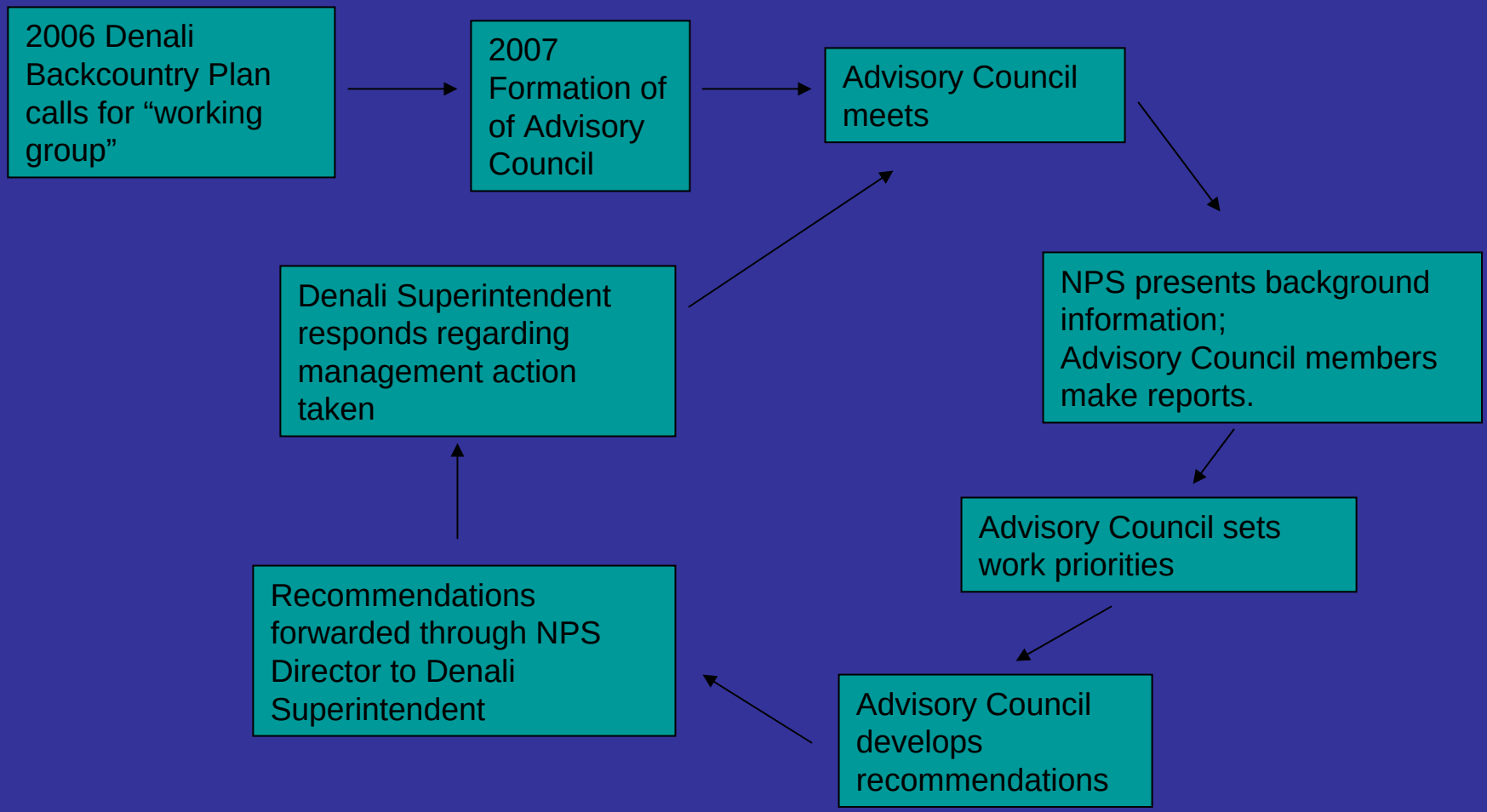
Overflights Advisory Council Decision Making Process



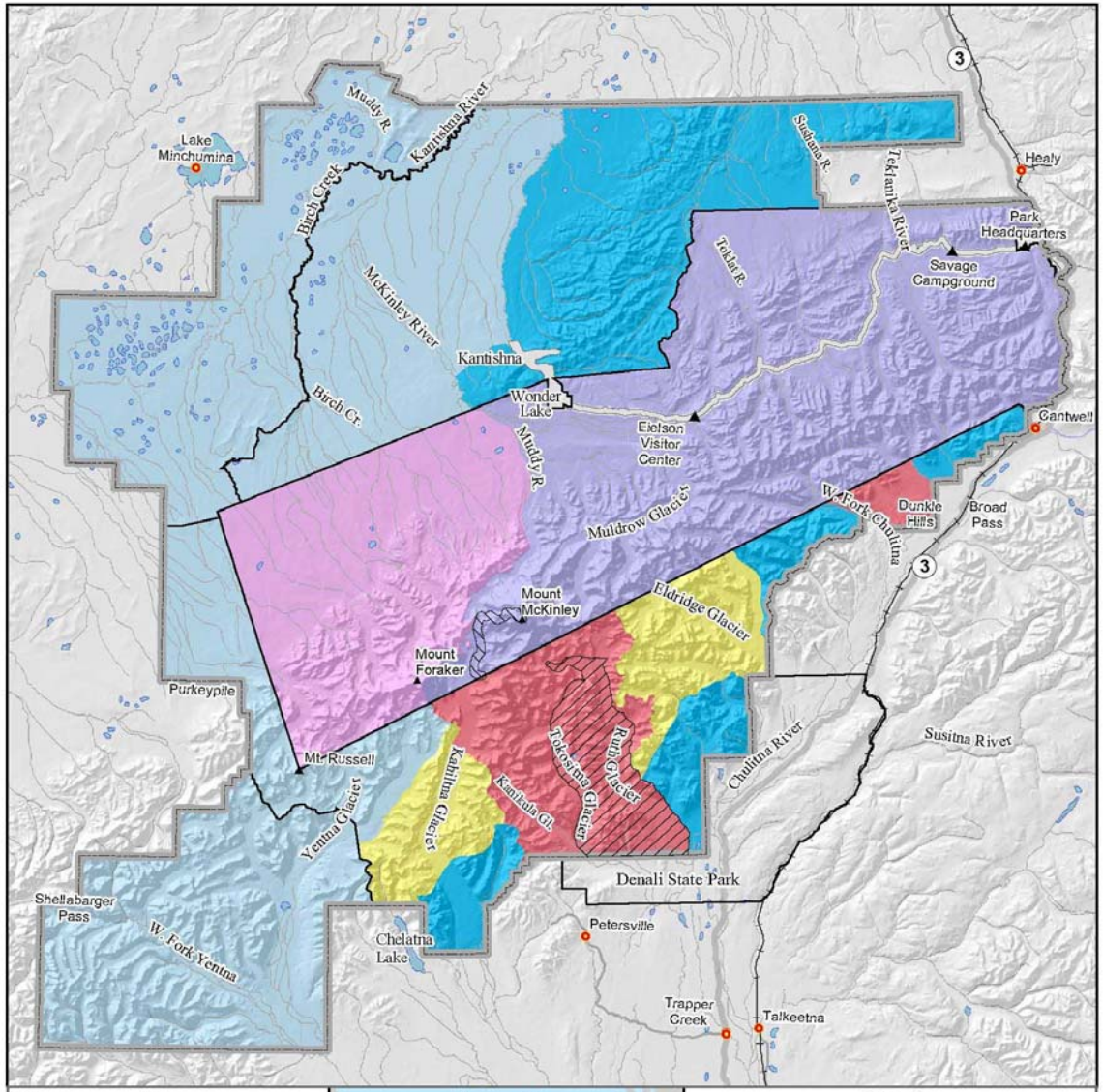
Purpose of the 2006 Denali Backcountry Management Plan

The goal of the backcountry management plan is to describe how the National Park Service will act to provide future generations with a variety of opportunities to experience the Denali backcountry while protecting park wildlife and other natural resources, wilderness resource values, and subsistence resources.

Specific issues identified during scoping include the following:

Aircraft Overflights and Airplane Landings:
Scenic air tours and concession-permitted airplane landings have increased dramatically since the 1986 GMP was completed. Helicopter and fixed-wing aircraft encounters are a common occurrence in all of the popular hiking areas, particularly south of the park road along the flank of the Alaska Range and in glaciated areas around Mount McKinley. Airplanes making landings on Alaska Range glaciers—once primarily a way to transport mountaineers—now account for almost 3,000 landings a year; and more than two-thirds of those landings are brief stops with scenic tour passengers.

Aircraft are an important means of visitor access to remote areas of the Denali backcountry, but overflights and landings, generally unrestricted by management plans in effect, have resulted in substantial changes in the natural sound environment and generated new conflicts with park users on the ground beneath flight corridors. Commercial jets traveling across the park, military flights in a Military Operations Area south of the Alaska Range, and NPS administrative use of aircraft also contribute to these issues.


Lake Minchumina
Muddy R.
Kantishna River
Birch Creek
McKinley River
Birch Cr.
Kantishna
Wonder Lake
Muddy R.
Eielson Visitor Center
Muldrow Glacier
Mount McKinley
Mount Foraker
Eldridge Glacier
Purkeypile
Mt Russell
Yentna Glacier
Kahiltna Glacier
Tokositna Glacier
Ruth Glacier
Kanikula Gl.
Shellabarger Pass
W. Fork Yentna
Chelatna Lake
Petersville
Denali State Park
Chulitna River
Susitna River
Trapper Creek
Talkeetna
Susitna R.
Teklanika River
Tolkat R.
Healy
Park Headquarters
Savage Campground
Gantwell
W. Fork Chulitna
Dunkle Hills
Broad Pass
3
Management Areas
A
B
C
D
OP1
OP2
Ruth Glacier Special Use Area
West Buttress Special Use Area
Location
Map 2
Alternative 4 - Modified (NPS Preferred)
Backcountry Management Plan
N
W
E
S
0
10
20
40 Miles

Management Area	Purpose	Natural Sound Disturbance
A	Provide a diversity of opportunities for wilderness recreational activities that are relatively accessible to day-users and to those who have limited wilderness travel skills or equipment.	High
B	Provide opportunities for wilderness recreational activities suitable for day-users and overnight users that are remote and require self-reliance.	Medium
C	Provide opportunities for climbing and mountaineering experiences in a wilderness setting.	Medium
D	Provide opportunities for extended expeditions that are remote and require self-reliance, significant time commitment, and thorough advance planning.	Low
Portal	Provide high-use airplane landing areas that provide year-round access to remote parts of the park and preserve (year-round or seasonal).	Same as for surrounding area, but no lower than Medium
Portal-Major Landing Area	Provide high-use landing areas that are suitable for both day use and expedition drop-off and pick-up. Seasonal, May-September.	Very High
Corridor	Provide high-use travel routes via ground or water that provide access to remote parts of the park or preserve. Year-round or seasonal.	High
Backcountry Hiker	Provide day use trails into the backcountry in areas that are accessible to many visitors. Year-round or seasonal.	Medium
Ruth Glacier Special Use	Provide for high use of transportation services during the season when large numbers of day users are accessing the Ruth Amphitheater. Seasonal, May-September.	Very High
Old Park		
OP1	Provide opportunities for day use and overnight wilderness recreational activities that are remote and require self-reliance in an area that has limited opportunities for motorized access.	Low
OP2	Provide opportunities for extended expeditions that are remote and require a high degree of self-reliance, significant time commitment, and thorough advance planning in an area that has limited opportunities for motorized access.	Low
West Buttress Special Use	Provide a seasonal route to the summit of Mount McKinley that can accommodate large numbers of climbers during the primary climbing season. Seasonal, late April to mid-July.	Low

Descriptor	Description & Standard	Monitoring	Process for Evaluation
Very High	Natural sounds are often interrupted by motorized noise including loud noise. Motorized noise may be audible up to 50% of any hour, and there may be up to 50 motorized noise intrusions per day that exceed natural ambient sound. Motorized noise does not exceed 60dBA.	Sound monitoring would be conducted on a continuous basis using remote monitors. Long-term monitoring and attended monitoring would take place at locations of particular concern or where it has been determined that management action is necessary to meet standards. Other locations would be randomly sampled.	Indicators and standards would be used as benchmarks for five years while additional information is gathered through the initial stages of the monitoring program. After five years, the NPS would propose changes to either the indicators or standards through a public process. Relative differences between categories (Low, Medium, High, Very High) would be retained during the revision process.
High	Natural sounds are frequently interrupted by motorized noise, including some loud noise. Motorized noise may be audible up to 25% of any hour, and there may be as many as 25 motorized noise intrusions per day that exceed natural ambient sound. Motorized noise does not exceed 60dBA.		
Medium	Natural sounds predominate in this area, but there are infrequent motorized intrusions, a few of which may be loud. Motorized noise may be audible up to 15% of any hour, and there may be as many as 10 motorized noise intrusions per day that exceed natural ambient sound. Motorized noise does not exceed 40dBA.		
Low	Natural sounds predominate in this area and motorized noise intrusions are very rare and usually faint. Motorized noise may be audible up to 5% of any hour, and there is no more than 1 motorized intrusion each day that exceeds natural ambient sound. Motorized noise does not exceed 40dBA.		
Notes: "Audible" means audibility to a person of normal hearing. Maximum sound levels assume the measurement device is more than 50 feet from the noise source. For comparison, 40dBA is the overall sound level inside a typical residential home. 70dBA is the sound level of a vacuum cleaner as perceived by the user.			

Aircraft Overflights Working Group

The National Park Service would establish an aircraft overflights working group, which would include scenic air tour operators, commercial airlines, general aviation organizations, and other concerned parties. This group would develop voluntary measures for assuring the safety of passengers, pilots, and mountaineers and for achieving desired future resource conditions at Denali.

2006 Denali Final Backcountry Management Plan, page 48

National Park Service
U.S. Department of the Interior

Denali National Park and Preserve

Soundscapes

The sound station on the Ruth Glacier is barely visible above the left plane.

There are many places in the National Park System which look very much like they did 200 years ago, but very few places which sound like they did even twenty years ago.

—Chip Dennerlein

The howl of a wolf—does it not speak of wildness? And how easily the musical chortle of migrating sandhill cranes or the rustle of winds in dry aspen leaves create lasting impressions of a park experience.

Many visitors to Denali and other national parks expect their experiences to include the hearing of sounds associated with a natural landscape.

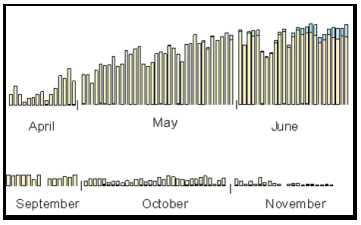
In a park setting, a *natural soundscape* is an area in which the acoustical properties are those of the natural surroundings—without any sounds caused by humans or human technology. The natural soundscape is viewed by the National Park Service as a valuable park resource that is appreciated by and sought after by visitors, and should be managed, as other resources are, to retain natural properties.

Importance of natural soundscapes

Many visitors strongly associate the natural sounds they have heard with the place where they heard them—the parks they hold dear. Natural sounds may be valued by the park visitor, but the importance of natural sound goes beyond the enhancement of a park visit. Natural sound is a matter of life and death to those animals that rely on complex communications. Intrusions of noise can adversely impact wildlife by interfering with the hearing of natural sounds important in foraging or predation, avoiding predators, migration, establishing territory, courtship, rearing young, and migration. Certain types and levels of sound can even cause physiological and/or behavioral responses that can reduce the animal's ability to survive to reproduce.

Protecting soundscapes

Sounds of the wild, as well as sounds meaningful in historic settings, are protected in the National Park System. The Organic Act established parks "to conserve the scenery, the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations..." This mission is interpreted to include protection of soundscapes, so visitors can hear sounds as park founders intended.



Automated sound stations such as the one at Sable Pass (photo at top) "listen in" and record samples of Denali's soundscape.

Songbirds were more vocal in the spring breeding season compared to fall (height of bars in bar graph). Data are from the Stampede Area.

Wind (seen ruffling a raven's feathers in bottom photo) is the most common natural sound in Denali.

Inventorying Denali's soundscape

Many natural sounds can be heard in Denali such as the howls of wolves, thunder of avalanches, roar of rivers, buzzing of mosquitoes, and raven croakings. Sometimes Denali's valued soundscape falls silent.

The Denali soundscape can be categorized into three acoustical zones —scrub/forest, sub-alpine, and alpine. The natural soundscapes in each zone result from the interplay of the production, propagation, and attenuation of sounds. Natural soundscapes in these zones of similar natural sound are influenced by the presence and type of animals, vegetation, seasonal and climatic conditions, topography and altitude, and proximity to water.

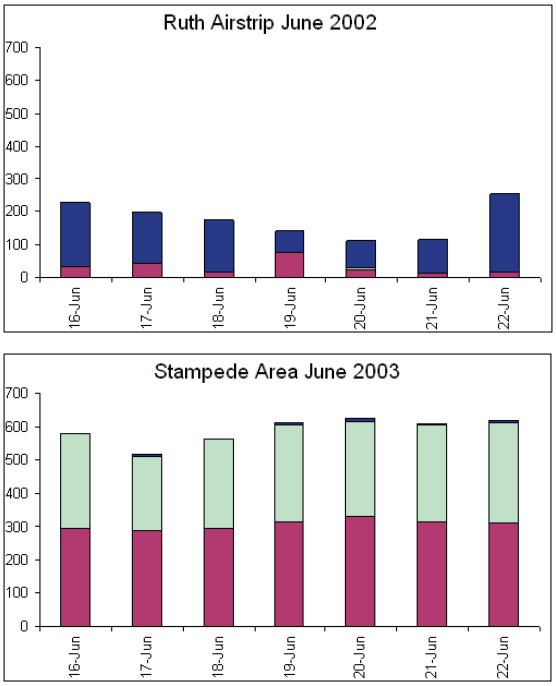
In recent years, park managers have recognized that the soundscape of Denali is becoming increasingly influenced by human-generated sounds. Park management wants to make well-informed decisions to preserve Denali's natural soundscapes and the wilderness values and visitor experiences associated with them. To establish current levels of motorized sound and monitor these sounds over time, a soundscape program was initiated at Denali in 2000. Microphones and data recorders "listen in" and record samples of Denali's soundscapes.

Each summer, automated sound stations are placed at four locations in the park. Locations are selected to represent the park's three acoustical zones, and to include areas with frequent and infrequent motorized use. A few locations are sampled during the winter season. These stations gather digital recordings every five minutes for five seconds over the course of a season. Sound levels (how loud the sounds are) are collected every second.

Results of soundscape analysis

From the audiorecordings for each location, researchers identify sound sources and calculate the number of times per day and the percentage of time each sound is audible. Sound levels of natural ambient sound are compared to those of human-generated sounds.

From the acoustic data, the relative abundance of sounds generated by humans, other living things (e.g., birds, insects), and physical processes (e.g., wind and rain) in each location over time can be summarized. Audio-recordings can also be used to identify bird-song patterns and identify presence of bird species, or to identify seasonal patterns of biological sounds.



Human-generated sounds dominated the Ruth Glacier Airstrip in June (top), whereas natural sounds dominated the Stampede Area (bottom). Bar height indicates the number of recording intervals in which sounds of each category were heard. Physical sounds are shaded in maroon, biological sounds in green, and human-generated sounds in dark blue.

From the data collected to date across all Denali soundscapes, the most common natural sound is wind and the most common human-generated sound is overflights.

For more information

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or check out the National Park Service Natural Sounds Program Center website: www1.nrintra.nps.gov/naturalsounds/index.htm

Grand Canyon National Park Soundscape Protection
A Case Study

Grand Canyon Enlargement Act, 1975

"Whenever the Secretary has reason to believe that any aircraft or helicopter activity or operation … within Grand Canyon National Park, …, which is likely to cause an injury to the health, welfare, or safety of visitors to the park or to cause a significant adverse effect on the natural quiet and experience of the park, the Secretary shall submit to the FAA, the EPA or any other responsible agency such complaints, information, or recommendations for rules and regulations or other actions he believes appropriate to protect the public health, welfare, and safety, or the natural environment within the park."

Mid-air Collision, 1986

Collision between two air tour flights resulted in 25 fatalities and focused national attention on the issue.

National Parks Overflights Act, 1987

- Analyze the nature, scope, and effects of overflights in National Park units.
- Secretary of Interior shall submit to the FAA recommendations regarding actions necessary for the protection of resources in the Grand Canyon from "significant adverse effects" associated with aircraft overflights.
- Recommendations shall designate flight-free zones and prohibit aircraft below the rim.

NPS and FAA Respond

In 1988, in response to the 1987 Overflights Act, the FAA published Special Federal Aviation Regulation (SFAR) 50-2. The regulation applied to aircraft flying below 14,500 feet and established flight free zones and minimum altitudes, set special routes for commercial sightseeing operators, and required certain terrain avoidance and communications requirements.

In 1994, NPS and FAA concluded that under SFAR 50-2 only 31% of the Park enjoyed "a substantial restoration of natural quiet"-- by which they meant that only 31% of the Park experienced natural quiet for at least 75% of the day.

In 1996, the President of the U.S. directed the Secretary of Transportation to issue proposed regulations for Grand Canyon NP that would limit sightseeing aircraft to "reduce the noise immediately" and to further restore natural quiet, while maintaining aviation safety in accordance with the 1987 Overflights Act.

In 1996 FAA issued a Final Rule that established new flight free zones, instituted flight curfews, and set a cap on the number of aircraft that could fly over the park. In addition to the 1996 Final Rule, the FAA proposed two further rules: one to modify flight paths in the Park; the other to require operators to use quieter aircraft.

The FAA predicted that the 1996 Final Rule, in conjunction with the two proposed rules, would meet the statutory goal of substantial restoration of the natural quiet by the year 2008.

In October 1997, the FAA discovered that it had significantly underestimated the number of tour aircraft operating in the Park, and that as a consequence the 1996 Final Rule would be less effective than it had thought.

Air Tour Management Plans

The National Parks Air Tour Management Act (2000) directs national parks to write air tour management plans. “The objective of any air tour management plan shall be to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tour operations upon the natural and cultural resources, visitor experiences, and tribal lands.” (Alaska is exempt from this law.)

Actions have been taken over the years to improve aviation safety and reduce noise, but a final overflights plan—including routes or corridors for quiet technology aircraft—is still to be completed. A Presidential memorandum directs that a plan shall ensure that the restoration of natural quiet required by the 1987 Overflights Act is completed no later than April 22, 2008.

The Grand Canyon Working Group

In 2001, NPS and FAA formed the National Parks Overflights Advisory Group (NPOAG) to provide advice, information and recommendations to NPS and FAA on implementation of the National Parks Overflights Act.

In 2005, the NPS and FAA established a Grand Canyon Working Group (GCWG) within the National Parks Overflights Advisory Group to provide advice and recommendations, and to participate in any rulemaking for a final overflights plan. The Working Group includes a balance of agency, tribal, environmental and aviation interests. The Group:

- Participates in the review of the overflights noise analysis
- Addresses issues related to overflights noise and safety
- Seeks meaningful, realistic and readily implementable solutions
- Develops recommendations by consensus, if possible
- Functions as an aviation rulemaking committee for the development of recommended aviation regulations, if necessary.

The agencies are in the process of writing an EIS that will result with FAA rulemaking in 2009.

More Information

See the Grand Canyon Working Group website for more information:
http://www.faa.gov/about/office_org/headquarters_offices/arc/programs/grand_canyon_overflights/documents/